

COUNTRY ANALYSIS BRIEFS

Angola

Last Updated: January 2010

Background

Angola joined the Organization of Petroleum Exporting Countries (OPEC) in January 2007 and is a leading African oil producing country.

Over the past three years, Angola has become the largest crude oil producing country in Africa, surpassing [Nigeria](#) in 2009 due to attacks on the oil infrastructure in the Niger Delta. Oil plays an important role in the Angolan economy, accounting for over 90 percent of export revenues and over 80 percent of GDP. Despite crude oil production limitations imposed by OPEC, Angola is expected to increase oil production and capacity in the short-term as new offshore projects come online and foreign investment continues to flow into the sector.

Natural gas production in Angola is tied directly to oil production and is often vented or flared, with limited volumes consumed domestically. Plans are underway to capture and market this natural gas for domestic electricity generation and to export most of it in the form of liquefied natural gas (LNG) by 2012.



Angola is still rebuilding the infrastructure destroyed during the country's 27-year civil war that came to an end in 2002. Some security issues remain, specifically in the disputed oil-rich Cabinda exclave where separatist groups are still active.

President José Eduardo dos Santos has been in power since 1979. The most recent presidential elections were held in 1992 which led to a flare-up in the then ongoing conflict. Parliamentary elections were held in 2008 and in January of 2009, the Parliament approved a bill to abolish direct presidential elections. The oil licensing rounds that were initially planned to follow the presidential elections are now expected to go ahead in the short-term.

In recent years, China has agreed to provide multi-billion dollar oil-backed loans to fund infrastructure development. These loans are costly and repayment depends heavily on international oil prices but at the same time, Chinese firms are playing an important role in Angolan recovery while Angola has become one of the leading suppliers of oil to China.

Oil

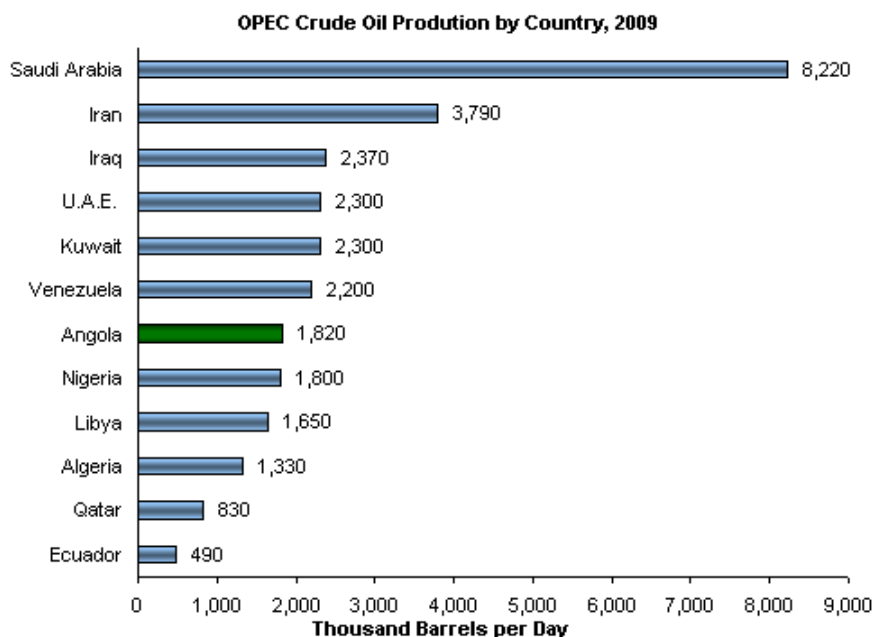
Overview

According to the *Oil and Gas Journal (OGJ)*, as of January 2010 Angola has proven oil reserves of 9.5 billion barrels while statements made by the Angolan oil minister in December 2009 put total reserve numbers as high as 13.1 billion barrels. The majority of Angola's oil reserves are located in offshore blocks, in part because onshore exploration was limited as a result of the civil war. However, there are some proven reserves onshore around the northern city of Soyo and also, in the disputed Cabinda Province.

In 2009 Angola was the largest crude oil producer in Africa, surpassing Nigeria where increased instability in the Niger Delta has shut-in large volumes

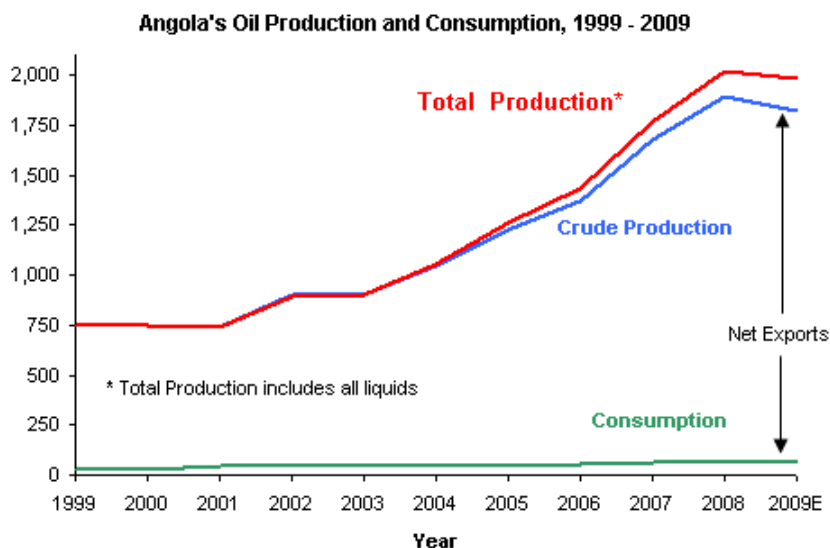
of oil production.

In 2007, Angola formally became a member of OPEC and in 2009, held the Organization's presidency. That year, Angola produced an average of 1.82 million bbl/d of crude oil making it the largest crude oil producer in Africa and placing it seventh among OPEC members according to EIA. Despite increasing oil production capacity, Angola maintained output at approximately 200,000 bbl/d below capacity as a response to OPEC's most recent production allocation (estimated to be between 1.52 million bbl/d and 1.66 million bbl/d) without cutting production by the full required amount.



Source: EIA *Short Term Energy Outlook January 2010*

Angola's total oil production capacity has grown considerably over the past decade averaging around 2.1 million bbl/d in 2009 (compared to 750,000 bbl/d in 1999), most of which is offshore. Oil consumption is estimated to be around 65,000 bbl/d, leaving almost all production for export. The majority of Angolan oil is heavy to medium crude (30 degrees – 40 degrees API) with low-sulfur content (0.12 percent - 0.14 percent).

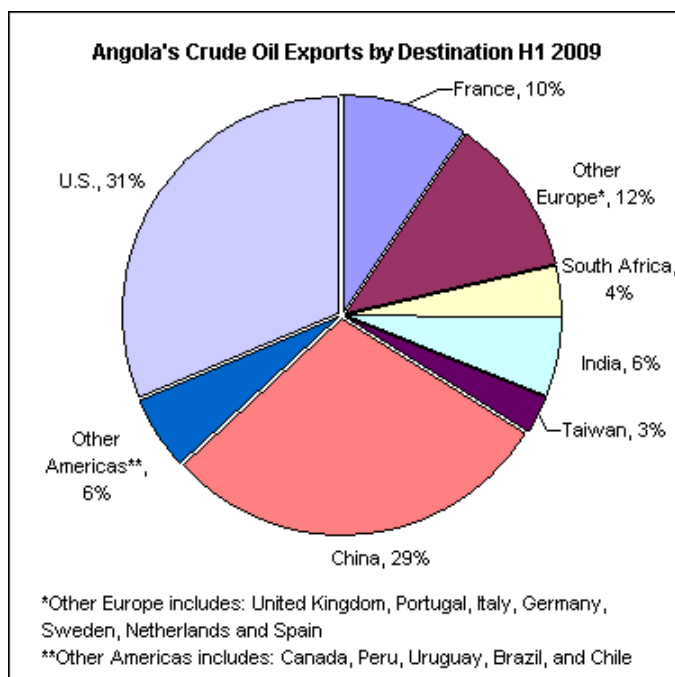


Source: EIA *International Energy Annual; Short-Term Energy Outlook*

Exports

In the first half of 2009, Angola exported over 1.7 million bbl/d of crude oil, (more than 90% of total production) primarily to China and the United States. The United States imported 535,000 bbl/d of crude oil from Angola (547,000 bbl/d of total oil imports) over the period making the country one of the [top sources for U.S. oil imports](#). Angola also exported approximately 500,000 bbl/d to China

and was the third largest source of Chinese imports after Saudi Arabia (740,000 bbl/d) and Iran (530,000 bbl/d) for the first half of 2009 according to *FACTS Global Energy*.



Sources: Global Trade Atlas, FACTS Global Energy (Chinese import data); EIA (U.S. import data)

Sector Organization

In 1976, the Angolan government created a national oil company (NOC) called the Sociedade Nacional de Combustiveis de Angola (Sonangol). In 1978, Sonangol became the sole concessionaire for oil and gas exploration and production in Angola. Sonangol works with foreign companies through joint ventures (JVs) and production sharing agreements (PSAs), while funding its share of production through oil-backed borrowing. In recent years, Sonangol has become more active in both upstream and downstream operations. Major international oil companies (IOCs) operating in Angola include BP, Chevron, Total, ExxonMobil and Eni. China's Sinopec and CNOOC are among the newer international companies operating in Angola and are proving to be important players in terms of development aid, oil backed loans and trade.

Exploration and Production

Oil production in Angola is concentrated in numerous offshore blocks. The offshore blocks are divided into three bands; shallow water blocks 0-13 (band A); deepwater blocks 14-30 (band B); and ultra-deepwater blocks 31-40 (band C). Additional blocks are now being designated in the ultra-deepwater offshore lower Congo Basin (click [here](#) to view Sonangol's concession map). Despite the expense of developing the deepwater and ultra-deepwater fields, Angolan oil production has grown rapidly over the past decade and will continue to do so in the short-term. Major existing and future developments are summarized below.

Onshore

Onshore exploration and production activities have mainly focused around the Cabinda province and were halted during Angola's civil war. The Cabinda province is home to separatist movements demanding access to oil revenues and greater participation in oil policy. While the government has appointed members to political positions, and security has improved, clashes still occur between the military and rebels in the area. Some existing wells that were drilled prior to the war and the neighboring Block Zero have proven to be extremely successful (see below).

Offshore

Block Zero: Block Zero is located offshore Cabinda province and is divided into two separate areas with 21 fields. Cabinda Gulf Oil Company (CABGOC), a Chevron subsidiary and operator of Block Zero since 1955, has a 39.2 percent share in the JV. Other partners include Total and Eni. According to Chevron, Block Zero accounted for approximately 340,000 bbl/d of production in 2008. Additional production is expected from the Block as drilling and exploration activities continue. In July 2009, Chevron also announced that the Mafumeira project was underway and the first field was to reach peak production of 30,000 bbl/d by 2011.

Block 14: In addition to Block Zero, CABGOC is the operator of neighboring deepwater Block 14 (also offshore Cabinda) with 31 percent interest and is joined by partners Eni, Sonangol, Total and Petrogal. A total of 11 discoveries have been made on the block with Kuito being the first in 1997.

Production in Block 14 centers around the Benguela, Belize, Lobito, Tomboco (BLT) project which reached its 200,000 bbl/d peak in 2008; the recently started up Tombua-Landana project which is expected to peak in late 2010 at 100,000 bbl/d; and the Kuito field which has been in decline from its 2000 peak of 80,000 bbl/d. As with Block Zero, further exploration is underway.

Block 15: ExxonMobil is operator of Block 15, the largest producing deepwater block in Angola along with partners BP, Eni and StatoilHydro. Block 15 is located in the Congo Basin and has estimated recoverable hydrocarbon reserves of 4.5 billion bbl, and at peak production, Block 15 is expected to exceed 800,000 bbl/d.

In 2003, ExxonMobil brought online *Xikomba* field, with estimated recoverable reserves of 100 million bbl. Production from Xikomba is currently below 20,000 bbl/d. In August 2004, the first of the *Kizomba* developments, four floating, production, storage and offloading (FPSO) facilities were brought online:

- The *Kizomba-A* project, which includes the Chocalho and Hungo fields, was the first of the Kizomba projects started in 2004 and peaked at 250,000 bbl/d. Phase 2 of this project started up in 2007 with the Marimba North field adding a further 40,000 bbl/d.
- The *Kizomba-B* project, brought online in 2005 includes the Dikanza and Kissanje fields. Kizomba-B contains an estimated one billion bbl of recoverable oil reserves peak production was an estimated 250,000 bbl/d.
- The *Kizomba-C* project, consists of the Batuque, Mondo and Saxi fields. Production at the Mondo field came onstream in January of 2008 and the other Kizomba C fields came onstream in mid- 2008 with a combined peak of 200,000 bbl/d.
- The *Kizomba-D* fields are expected onstream after 2011 with a peak production capacity of 120,000 bbl/d. There is potential for added production from surrounding satellite fields expected onstream after 2010 that could produce an additional 125,000 bbl/d.

Block 17: Total operates Block 17 with a 40 percent share, while Sonangol is the concession holder. Other shareholders include ExxonMobil, BP, and StatoilHydro. According to BP, the block is producing around 250,000 barrels of oil equivalent per day. Field production started in December 2001 with the startup of the Girassol field and production has since been maintained by the startup of Jasimin (2003), Dalia (2006) and Rosa (2007)

Future projects on Block 17 include Pazflor and CLOV, which will produce an estimated 200,000 bbl/d and 150,000 bbl/d, respectively, starting in 2011. In 2009, Total also announced a new discovery, Gardenia-1 that confirmed the companies plans to expand activities in the block.

Block 18: The Greater Plutonio development in Block 18 (BP operated) came online in October of 2007 at 100,000 bbl/d. The development consists of five fields: Plutonio, Galio, Paladio, Cromio and Cobalto and is currently producing just under 200,000 bbl/d.

Upcoming Projects

Despite limitations imposed by OPEC, companies operating in Angola are on track to significantly ramp up their offshore developments in the short- and medium-term. Major projects summarized below represent tie-ins to support existing developments and also new developments that are underway. Industry analysts have estimated that Angolan production capacity could peak between 2.5 and 3 million bb/d by 2015 based on existing discoveries.

Angola's Upcoming Oil Projects				
Project	Location	Operator	Peak Production (total liquids)	Expected Start-up Peak
Negage	Block 14	Chevron	75,000 bbl/d	2010+
Pazflor	Block 17	Total	200,000 bbl/d	2011
PSVM (a)	Block 31 NE	BP	150,000 bbl/d	2011
Kizomba D	Block 15	ExxonMobil	120,000 bbl/d	2011+
CLOV	Block 17	Total	150,000 bbl/d	2011+
Other Block 31	Block 31	BP	300,000 bbl/d	2012+
PCC (b)	Block 18	BP	100,000 bbl/d	2012+
Other Block 32	Block 32	Total	120,000 bbl/d	2012+
a) Plutão, Saturno, Vênus and Marte				
b) Platino, Chumbo, Cesio				

Sources: BP, Total, ExxonMobil, Afroil, Oil and Gas Journal, International Oil Daily, Petroleum Intelligence Weekly, Reuters, Petroleum Economist

Refining and Downstream

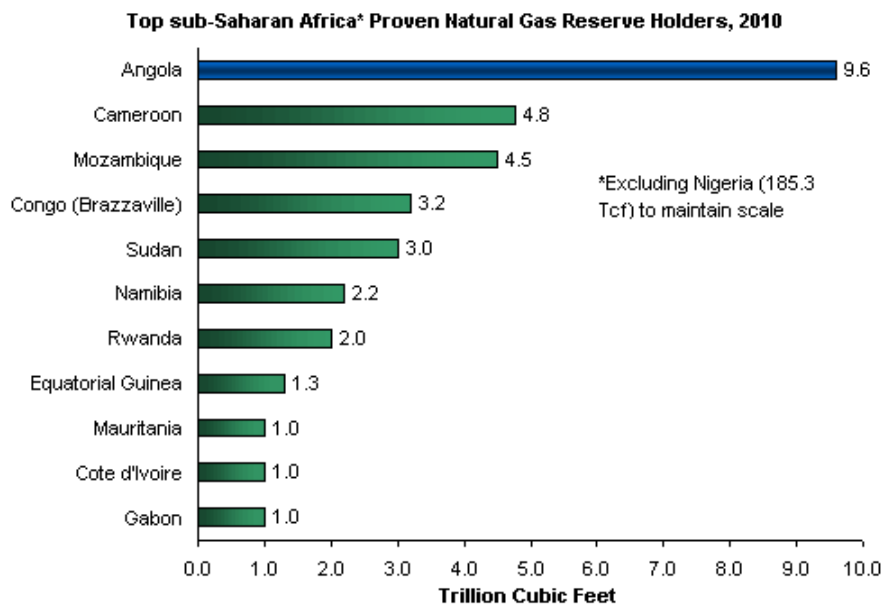
Domestic oil consumption in 2009 was approximately 65,000 bbl/d. The country's one refinery in Luanda, Fina Petroleos de Angola – a JV between Sonangol Total and private investors – has a crude oil processing capacity of 39,000 bbl/d. The remaining demand is met by imports of gasoline, jet fuel, kerosene, distillate fuel oil, and other products.

Angola is developing plans for a new 200,000 bbl/d refinery, SonaRef, in the coastal city of Lobito. The project was initially to be built in partnership with Sinopec but the Chinese company withdrew as a result of disagreements regarding the market for products. Sonangol is now proceeding with the SonaRef project but the project completion date is now slated for 2014-2015. The new refinery will be able to process heavy crudes, such as those found in the Kuito and Dalia fields. In the interim, the expected demand increases will continue to be met by product imports.

Natural Gas

Angola currently flares the majority of its natural gas but plans are underway to convert natural gas into liquefied natural gas (LNG).

According to the *Oil and Gas Journal* (OGJ), Angola has 9.6 trillion cubic feet (Tcf) of natural gas reserves as of January 1, 2010—a significant increase from the 2007 estimated reserves of 2 Tcf. According to EIA statistics, in 2008, Angola's gross natural gas production was approximately 355 billion cubic feet (Bcf). Of this, 244 Bcf (69%) was vented or flared, 81 Bcf (23%) was re-injected to aid in oil recovery and 29 Bcf (8%) was marketed for domestic consumption.

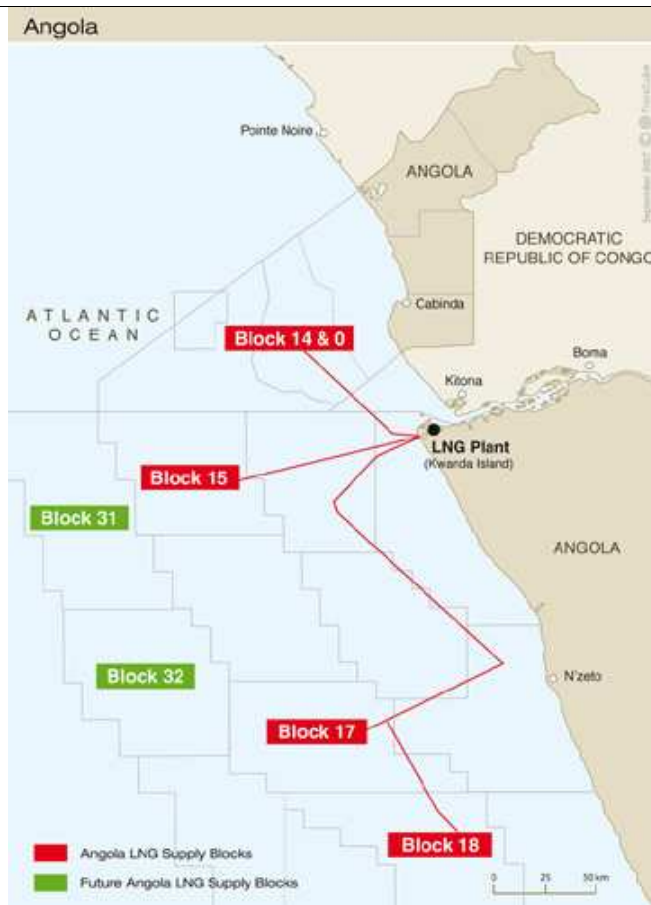


Source: *Oil and Gas Journal*

With the considerable increases in proved natural gas reserves and government policies to end natural gas flaring, plans are underway to convert much of the natural gas into LNG for export with some to be used for domestic electricity production.

Liquefied Natural Gas (LNG)

Chevron and Sonangol together with other shareholders including Total, BP and Eni are building a five-million-ton LNG plant near Soyo in northern Angola. The plant is expected to be operational by 2012.



Source: Total Corporate Website

The natural gas will come from several offshore fields including Total's Block 17, BP's block 18 and Chevron's blocks Zero and 14. According to the partners, the project will process 1 billion cubic feet of associated gas per day and will eventually produce 5.2 million tons per year of LNG plus process up to 125 million cubic feet per day of gas for the domestic market. Initially, the LNG is to be directed to the US market, currently intended for the regasification plant at Pascagoula on the US Gulf Coast.

Profile

Energy Overview

Proven Oil Reserves (January 1, 2010)	9.5 billion barrels
Oil Production (2008)	2.0 million barrels per day (1.9 crude)
Oil Consumption (2008)	64 thousand barrels per day
Crude Oil Refinery Capacity (2009)	39 thousand barrels per day
Proven Natural Gas Reserves (2010)	9.6 trillion cubic feet
Natural Gas Production (2008)	24 billion cubic feet
Natural Gas Consumption (2008)	24 billion cubic feet
Electricity Installed Capacity (2007)	0.84 gigawatts
Electricity Generation (2007)	3.7 billion kilowatt hours
Electricity Consumption (2007)	3.2 billion kilowatt hours
Total Energy Consumption (2007)	0.19 quadrillion Btus*
Total Per Capita Energy Consumption (2007)	15.1 million Btus
Energy Intensity (2007)	2,274 Btu per \$2005-PPP**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2007)	22.1 million metric tons
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Per-Capita, Energy-Related Carbon Dioxide Emissions (2007)	1.80 metric tons
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Carbon Dioxide Intensity (2007)	0.53 metric tons per thousand \$2005-PPP**
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Oil and Gas Industry

Organization	State-owned Societede Nacional de Combustiveis de Angola (Sonangol) oversees offshore and onshore oil operations in Angola
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Major Oil/Gas Ports	Luanda, Malango (Cabinda), Palanca, Quinquena
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Major Refinery	Fina Petroleos De Angola – Luanda (39,000 bbl/d)
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* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

**GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA - Country Information on Angola](#)

U.S. Government

[CIA World Factbook - Angola](#)

[U.S. Agency for International Development: Angola](#)

[U.S. Census Bureau -Trade with Angola](#)

[U.S. Geological Survey - Africa and Middle East Mineral Information: Angola](#)

General Information

[All Africa News Service: Angola](#)

[Human Rights Watch - Report Angola](#)

[International Energy Agency \(IEA\): Key Energy Indicators for Angola](#)

[University of Pennsylvania African Studies: Angola](#)

[U.S.-Angola Chamber of Commerce](#)

International Organizations and Institutions

[African Development Bank: Angola](#)

[African Union \(formerly Organization of African Unity\)](#)

[Development Bank of Southern Africa](#)

[International Monetary Fund \(IMF\): Angola](#)

[SADC Central Banks Website](#)

[World Bank: Angola](#)

National Links

[Embassy](#)

[National Bank of Angola \(in Portuguese\)](#)

[Sonangol \(National Oil Company\)](#)

International Oil Companies

[BP](#)

[Chevron](#)

[CNOOC](#)

[Eni](#)

[ExxonMobil](#)

[Sinopec](#)

[Total](#)

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AfrOil : Newsbase Africa Oil and Gas Monitor

BBC News

Business Monitor International – BMI Middle East and Africa Oil and Gas Insights

Central Intelligence Agency Country Reports

Economist Intelligence Unit (EIU) Viewswire

Energy Intelligence Group, Inc.

Forbes

Global Insight

Global Witness

Human Rights Watch

International Oil Daily

Oil and Gas Journal
Petroleum Economist Limited
Petroleum Intelligence Weekly
Platts Oilgram News
Reuters News Corporation
Rigzone

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